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(54) A method of sealing a joint

(57) A method of sealing a joint between two parts 10, 12 of an enclosure comprises machining identical grooves 14, 16 in the mating faces of the two parts, assembling the two parts together and injecting a sealing compound into the groove between the parts. When used for screening a radio frequency source within the enclosure, the sealing compound may comprise a silver loaded rubber.

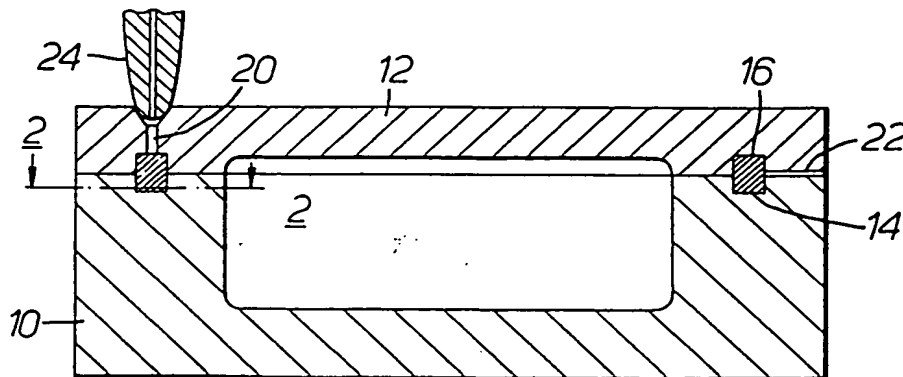


FIG. 1.

The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

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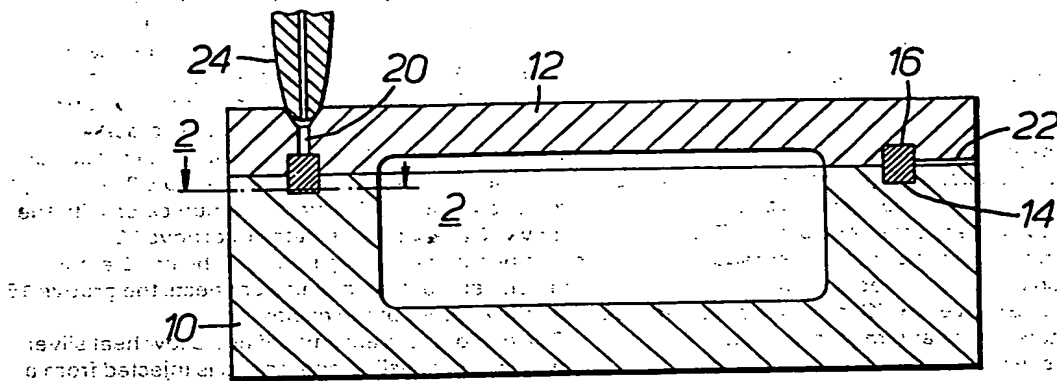


FIG. 1.

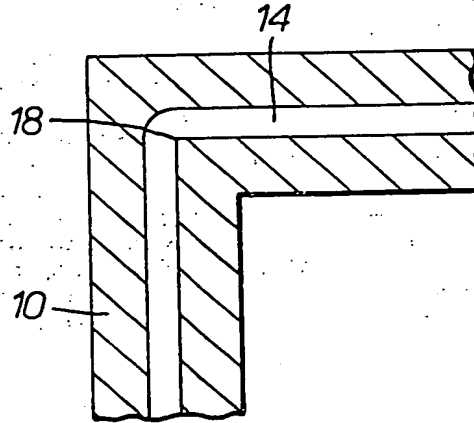


FIG. 2.

SPECIFICATION

A method of sealing a joint

5 This invention relates to a method of sealing a joint and particularly but not exclusively to a method of sealing a joint in an enclosure from atmosphere and radio frequency signals.

The normal way of R.F. and atmospheric sealing of an enclosure consisting of for example, a container and a tightly fitting lid comprises using a gasket or a resilient 'O' ring made of a suitable atmospheric sealing material. The container and lid are usually both metal and metal-to-metal contact is required for R.F. sealing. Thus the gasket or 'O' ring must be recessed into a cavity and this is expensive and particularly difficult with very small enclosures. The tolerances on the thickness of flat gaskets are wide and gaskets are also difficult to produce with complicated shapes. Grooves for 'O' rings must be machined to tight tolerances and must have high quality surface finishes to effectively seal. It is also expensive to produce tools for specially shaped 'O' rings and the radius of curvature of an 'O' ring is restricted to about twice the diameter of the 'O' ring section.

It is an object of the present invention therefore to provide a method of sealing a joint which will seal equally as well as gaskets or 'O' rings but which is cheaper and easier to accomplish.

According to the present invention a method of sealing a joint between two abutting wall members comprises the steps of forming a groove circumscribing the mating surface of at least one of the wall members, forming orifices in at least one wall member leading from the groove to the exterior of at least one wall member and injecting a sealing compound into at least one of the orifices when the two wall members are abutting until the groove is filled with the sealing compound.

The two abutting wall members may consist of a container and a lid.

Preferably a groove is formed which circumscribes each of the mating surface of the lid and the mating surface of the container.

The orifices in at least one wall member may comprise holes formed through the lid and/or the container, or may comprise further smaller grooves formed in the mating surfaces of the lid and/or the container.

Preferably the groove is formed by machining with normal machining tolerancing.

Preferably the sealing compound is injected through a hole formed in the lid, excess sealing compound escaping through a further groove formed in the mating surface of the lid.

Preferably the sealing compound comprises a silver loaded rubber.

The invention also comprises an enclosure sealed by the method as set forth in the preceding paragraphs.

Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which

65 *Figure 1* is a cross-sectional view of an enclosure

having a joint sealed by the method according to the invention and

Figure 2 is a cross-sectional view of part of the enclosure taken along line 2-2 on *Figure 1*.

70 The enclosure shown in *Figure 1* comprises a container 10 and a lid 12. The mating surfaces of the lid and the container are machined to provide a good seating and a continuous groove 14 is machined around the mating surface of the container 10. A similar groove 16 is machined around the mating surface of the lid 12 which is a mirror image of the groove 14. These grooves are machined to normal tolerancing and can be of any suitable cross-sectional shape. The corners of the groove, such as the corner 18, can be quite sharp. A hole 20 is provided in the lid 12 which communicates with the groove 16 and a small scratch or groove 22 is machined in the mating surface of the lid 12 at the opposite end of the lid which connects the groove 16 with the exterior of the enclosure.

85 The enclosure is assembled and a low heat silver loaded rubber sealing compound is injected from a nozzle 24 into the mating grooves 14 and 16. The grooves are filled with the compound, which also fills all machining irregularities and pockets, until surplus sealing compound passes through the scratch 22. The enclosure is then cured in an oven to finalise the process.

90 The method is particularly suitable for sealing a joint in an enclosure for an R.F. source which requires both R.F. and atmospheric sealing to prevent interference of the output, but the method can be used for sealing joints in many other applications.

100 CLAIMS

1. A method of sealing a joint between two abutting wall members comprising the steps of forming a groove circumscribing the mating surface of at least one of the wall members, forming orifices in at least one wall member leading from the groove to the exterior of at least one wall member and injecting a sealing compound into at least one of the orifices when the two wall members are abutting until the groove is filled with the sealing compound.

2. A method as claimed in claim 1 in which the two abutting wall members consist of a container and a lid.

3. A method as claimed in claim 2 in which a groove is formed which circumscribes each of the mating surface of the lid and the mating surface of the container.

4. A method as claimed in claim 2 or 3 in which the orifices in at least one wall member comprises holes formed through the lid and/or the container.

5. A method as claimed in claim 2 or 3 in which the orifices comprise further smaller grooves formed in the mating surfaces of the lid and/or the container.

6. A method as claimed in any preceding claim in which the groove is formed with normal machining tolerancing.

7. A method as claimed in any preceding claim in which the sealing compound is injected through a hole formed in the lid, excess sealing compound escaping through a further groove formed in the

mating surface of the lid.

8. A method as claimed in any preceding claim in which the sealing compound comprises a silver loaded rubber.

5 9. An enclosure sealed by the method as claimed in any preceding claim.

10. A method of sealing a joint substantially as hereinbefore described with reference to the accompanying drawings.

10 11. An enclosure sealed by the method substantially as hereinbefore described with reference to the accompanying drawings.

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